Putting Research to Work

RD&T E-Newsletter, July 2004

Technical information for state DOT highway professionals

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WisDOT RD&T Home

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Research World

Mine Down Under for Asphalt Details

Avoid the day-long flight and find the latest on asphalt in Australia and New Zealand at the Austroads Web site. At http://www.austroads.com.au/pavement/technotes.html, you'll find brief profiles of practices in materials, design and maintenance, and contacts for more information. Recently posted were updates of two 11-year-old studies on foam sealants and stone mastic (or matrix) asphalt.

Iceland Creates Salt Water-Based Frost Test

Iceland's new salt water-based frost-resistance test of aggregates better mimics real conditions and effectively distinguishes between frost-resistant and frost-susceptible aggregates. Read more in the latest issue of *Nordic Road and Transport Research* newsletter, which also features a survey of the Danish Road Institute's current research, at http://www.vti.se/Nordic/.

UK Safety Cameras Save 100 Lives a Year

The number of people killed or seriously injured at sites where safety cameras are in use has fallen by 40% in the United Kingdom, according to a three-year study commissioned by the UK Department for Transport. The sites reported more than 100 fewer deaths per year and 4,000 fewer injury accidents than before the cameras were installed. See http://www.dft.gov.uk/pns/DisplayPN.cgi?pn_id=2004_0067, and view the full report at http://www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/downloadable/dft_rdsafety_029194.pdf. Courtesy of the TRB E-Newsletter.

World Road Association Committee Reports Online

Final reports from the World Road Association's technical committees, which ended their four-year work cycle in October 2003, are now available online. The committees studied topics including pavements, bridges, tunnels, winter maintenance, and intermodal transportation. See http://www.piarc.org/library/file/3/9523.pdf. Courtesy of the Austroads PIARC E-Newsletter.

An ITS R&D Plan for Canada

The Transportation Development Centre, Transport Canada's research organization, presents a comprehensive ITS R&D plan for Canada addressing 511 readiness, GIS standards, work zone traffic management and other key issues at http://www.tc.gc.ca/tdc/projects/its/d/menu.htm.

To receive notice of **Putting Research to Work** each month, e-mail wisdotresearch@dot.state.wi.us.
Previous issues are available at http://www.dot.wisconsin.gov/library/publications/format/newsletters/rdt.htm.

Other e-newsletters for transportation professionals:
TRB E-Newsletter from the Transportation Research Board: http://gulliver.trb.org/news/.
The AASHTO Journal from the American Association of State Highway and Transportation Officials: http://www.transportation.org/publications/journal.nsf.
CTS Research E-News from the University of Minnesota: http://www.cts.umn.edu/publications/enews/.
Texas Transportation Researcher from TAMU's Texas Transportation Institute: http://tti.tamu.edu/researcher/.
Austroads Newsletter from Austroads: http://www.austroads.com.au/newsletter.html.
Transportation Communications Newsletter: http://groups.yahoo.com/group/transport-communications/.

Designing for the Future

US 53 Project in Wisconsin Features Innovative Intersection Design

District 6's construction of the 7.5-mile US 53 Freeway in and near Eau Claire includes Wisconsin's first single-point interchange, which will be built at the intersection of US 53 and US 12. All turns at the intersection (located on the US 12 overpass) will be centered around a single point, allowing safer and smoother traffic movement and more efficient signal timing. See http://www.dot.wisconsin.gov/projects/d6/us53/singlept.htm.

Engineers Rise to Challenge for Milwaukee Pedestrian Bridge

The new pedestrian and bicycle path along Milwaukee's Holton Street Viaduct will have an unusual location—true to its name, the Marsupial Bridge will hang beneath the viaduct. Engineers determined that connecting the pedestrian bridge to the girders of the viaduct as planned would considerably reduce the structural capacity of the existing bridge, so they decided to hang the bridge at the viaduct's piers instead. See http://www.marsupialbridge.com/Design.htm, and read more about the bridge in *Milwaukee World* magazine at http://www.milwaukeeworld.com/marsupial/index.php.

Nominate Your Work for an FHWA Design Award

There's still time to submit a project for FHWA's 2004 Excellence in Highway Design Biennial Awards. Past award winners include WisDOT's 12-mile reconstruction of WIS 23 in Iowa County, which eliminated dangerous hairpin turns while preserving the area's beauty with scenic overlooks and benched rock cuts. Entries for this year's awards must be postmarked by July 31. See http://www.fhwa.dot.gov/eihd/04award.htm for details, and read about past WisDOT winners at http://www.fhwa.dot.gov/eihd/wih23.htm and http://www.fhwa.dot.gov/eihd/2002/cat2pic4.htm.

'Road Diets' Help Keep Drivers, Pedestrians Healthy

Converting an undivided four-lane road to a three-lane road with a center turn lane, known as a "road diet," can benefit both drivers and pedestrians by reducing crashes. A new Highway Safety Information System report is helping to quantify those benefits. Researchers found that road diet sites had 6% fewer crashes after their conversion than comparison sites in the same time period. See http://www.tfhrc.gov/safety/hsis/pubs/04082/index.htm.

Los Angeles GIS Site Hosts Interactive Maps

Contractors working on Los Angeles construction projects once had to seek out utility locations on thousands of paper maps, updated painstakingly by city officials. Now they can turn to the city's NavigateLA Web site (http://navigatela.lacity.org), which features interactive, annotated maps that can be updated in seconds, making it easier to coordinate public and private projects. Read more in *Directions* magazine at http://directionsmag.com/article.php?article_id=597.

Online Tool Helps Estimate Compost Use

Determining the amount of compost needed for a landscaping project can be a hit or miss proposition. To help designers get it right, Virginia DOT developed a Web-based Compost Calculator, now available at http://virginiadot.org/business/bu-compost.asp. The tool has improved contractors' bid accuracy and has helped VDOT improve its own construction estimates. Read more at http://virginiadot.org/infoservice/is-what-is-new.asp.

Bridge's Box Girder Designed with Maintenance in Mind

Recently honored with a California Transportation Foundation award, the Alfred Zampa Memorial Bridge over the Carquinez Strait features North America's first use of an orthotropic box girder on a suspension bridge. Maintenance crews can examine virtually all welded and bolted connections from within the girder, which is continuous for the full length of the bridge. See http://www.dot.ca.gov/ctnews/CTNews_6-04.pdf, and read more about the bridge's design at http://www.seaoi.org/html/body_2004_carquinez_bridge.html.

Construction and Materials Innovations

Focus on Pavements

FHWA's June issue of *Focus* is all about pavement. One piece introduces the Office of Pavement Technology and its programs, such as its promising new Concrete Pavement Technology Program. A second piece describes a study of 68 surface profilers, including a trailer-mounted profiler developed by Wisconsin's own Harley-Davidson Motor Co. The third features the Pavement and Materials Technical Services Team as a resource for maintenance engineers and designers. See http://www.tfhrc.gov/focus/june04/index.htm.

Bridge Views Online

The May/June issue of *HPC Bridge Views*, a newsletter for designers, includes an article on prefabricated bridges, another on the maximum compressive strength of pretensioned beams as correlated to strand diameter, and another about Maine DOT's findings on self-consolidating concrete. View the newsletter online at http://www.cement.org/pdf_files/hpc-33mayjun04.pdf.

LTPP Data Consolidation Report Released

The Turner-Fairbank Highway Research Center recently posted its final report on an effort to consolidate data collected from the Long-Term Pavement Performance program. Although it was collected using three different methodologies, combining the data proved less problematic than expected. However, a third of the data will require further review. See http://www.tfhrc.gov/pavement/ltpp/reports/01143/index.htm.

Texas Produces Two Reports on Pavement Condition Measures

Researchers at the University of Texas at Austin have published a study on the Structural Condition Index, a measure of structural integrity—view the final report at http://www.utexas.edu/research/ctr/pdf_reports/0_4322_1.pdf. The report dovetails with work at UT-Austin on a new pavement distress measuring system (see http://www.utexas.edu/research/ctr/news/awards/xu.html).

A Fountain of Youth for Concrete Bridge Decks?

Pennsylvania State University engineers have designed 10 concrete mixtures containing industrial by-products that dramatically improve pavement life. Researchers arrived at the mixtures, which make it possible for concrete bridge decks to last three times longer than normal—or 75 to 100 years—after experimenting with 154 combinations of fly ash, silica fume, and other materials with various levels of cement content. See http://www.azom.com/news.asp?newsID=1415.

Missouri Team Proposes Remedies to Bridge Approach Slab Settling

Recent Missouri DOT research evaluates performance and design of bridge approach slabs. Through survey and analysis of two sites, researchers determined settling could be reduced by thorough study of embankment soil properties, use of geosynthetic reinforcements and geofoams, and reevaluation of steel rod use in foundations. Read the final report at http://168.166.124.22/RDT/reports/Ri02033/RDT04010.pdf. Courtesy of the TRB E-Newsletter.

New Product Offers Access to LTPP Data

The Long-Term Pavement Performance program has developed a new Standard Data Release—a set of CD-ROMs containing databases in Microsoft Access format. The CDs include a navigation tool for combining data sets with reference documents, and will be updated every six months. See http://www.tfhrc.gov/pavement/ltpp/getdata.htm. Courtesy of the TRB E-Newsletter.

Operating/Optimizing the System

Rest Areas Go Wireless

Texas DOT is encouraging motorists to take a break from the road and hit the information superhighway. TxDOT hopes to choose a vendor this month to provide Internet access at the state's rest areas. Read the press release at http://www.dot.state.tx.us/txdotnews/030-2004.htm and a *USA Today* story at http://www.usatoday.com/tech/wireless/data/2004-06-17-texas-wifi_x.htm. Closer to home, Iowa DOT rolled out its own pilot program last month. Read about it in *USA Today*: http://www.usatoday.com/tech/wireless/data/2004-06-29-iowa-wifi-reststops_x.htm.

Hands-Free Plowing?

California researchers are trying to eliminate the "drive by feel" snowplowing technique. A pooled-fund study aims to keep plow blades from riding guardrails, minimizing the need for rail repair and replacement and easing the task operators face when clearing snow. Read the latest on that research in *Intellimotion* newsletter at http://www.path.berkeley.edu/PATH/Intellimotion/IM_10_4.pdf.

Leaving Room for the Natives

If you give them somewhere to go, little critters may not be impacted as negatively by highway projects. By incorporating animal shelving in small-diameter drainage culverts, Montana DOT found the effects of a highway reconstruction project on the nearby animal population can be reduced. Shelved culverts were used by 14 different mammal species during a 27-month study. The study includes recommendations for shelf use and for modifying other culvert types. See http://www.mdt.state.mt.us/research/docs/research_proj/animal_use/phaseII/final_report.pdf.

U.S. DOT Argues for Satellite Weather, Traffic Reports

The National Association of Broadcasters is petitioning the Federal Communications Commission to bar satellite radio providers from disseminating traffic and weather conditions in various metropolitan areas. That effort isn't sitting well with U.S. DOT. In a statement submitted to the FCC, the DOT argues that it is in the public's best interest to allow satellite digital audio radio services to transmit such information nationwide. Hearing traffic and weather conditions will allow motorists to make better decisions about their travels. Read the DOT's comments at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6516214430. Courtesy of Transportation Communications Newsletter.

Highway Measurement Van Helps Keep Things Moving

It may look like a normal van traveling on the highway, but if researchers at FHWA's Turner-Fairbank Highway Research Center are successful, that van will prevent congestion and keep highways safer. Rather than disrupting traffic, the Digital Highway Measurement vehicle travels at normal highway speeds while it gathers the necessary data for efforts such as reconstruction projects, pavement improvement programs and asset management databases. Read about the DHM vehicle in *Research and Technology Transporter* at http://www.tfhrc.gov/trnsptr/may04/index.htm#adv.

Ohio Engineers Lighten Their Load

Ohio traffic engineers won't have to lug around 228-page traffic control manuals anymore. Instead, the engineers will refer to their new pocket-sized, weatherproof versions of the Guidelines for Traffic Control in Work Zones. Scaled down to 53 pages, the field guide is much more user-friendly for crews on the road. Read about it on page 3 of Ohio DOT's employee newsletter at http://www.dot.state.oh.us/communications/pdf/transJun04.pdf.

Safe Travel/Smart Travel

Deer-Vehicle Crash Reduction

The Deer-Vehicle Crash Information Clearinghouse at the University of Wisconsin-Madison is an excellent source of information and tools for dealing with the problem of deer-vehicle crashes. Made possible through research funds from WisDOT, the regional clearinghouse has produced numerous useful products, including research papers, a five-state survey on data collection methods related to deer-vehicle crashes, and the DVCIC Countermeasures Toolbox. See http://www.deercrash.com/.

More Muscle for Motorcycle Safety

Motorcycling deaths in the U.S. rose for the sixth straight year in 2003; the year was also the deadliest for Wisconsin motorcyclists in more than a decade. Wisconsin and other states are stepping up measures to reverse the trend. WisDOT's 2004 Motorcycle Safety Action Plan sets forth a group of motorcycle safety strategies focusing on 12 key actions aimed at reducing motorcyclist fatalities and injuries in the state to below 2003 levels. View the plan at http://www.dot.wisconsin.gov/library/publications/topic/safety/motorcycleplan.pdf.

GM 'Black Box' Data Will Be Downloadable to PCs

General Motors has authorized California-based Vetronix Corp. to develop software, hardware and interface cables to allow crash data stored in recordable airbag modules to be downloaded to desktop computers. Data useful to researchers and investigators such as driver seat belt use and pre-impact data can be stored and displayed in an easy-to-read format. Link to the press release: http://www.emediawire.com/releases/2004/6/emw133697.htm.

Animated Signs Improve Safety at Rural Intersection

An innovative, automated warning system installed at a rural intersection in Aden, Va., improved traveler safety by slowing traffic and providing those in greatest danger of colliding with an average of 38% more time to take corrective action. See http://www.benefitcost.its.dot.gov/ITS/benecost.nsf/ByLink/BOTM-June2004.

States Increasingly Opt for Age-Based Testing

States are taking a closer look at older motorists, concerned that vision, reaction time and other driving skills have diminished. At least 22 states now have laws singling out older drivers for special attention, including road and vision tests. Read more in Mississippi's *Picayune Item*: http://www.picayuneitem.com/articles/2004/06/26/news/23drivers.txt.

Taking Aim at Back-Over Accidents

Back-over accidents kill 90 people each year, many of them children, according to a new study by the National Highway Traffic and Safety Administration. Technology such as rear-obstacle sensor systems is becoming available to help prevent these tragedies. From KCRA-TV in Sacramento, Calif.: http://www.thekcrachannel.com/call3/3417086/detail.html.

Vehicle-Related Road Debris Feeds Crashes

According to new research released by the AAA Foundation for Traffic Safety, vehicle parts, cargo or other material unintentionally discharged from vehicles onto roadways is estimated to cause more than 25,000 crashes a year in North America, resulting in 80 to 90 fatalities. The report proposes low-cost education and enforcement countermeasures. Link to the press release: http://home.businesswire.com/portal/site/google/index.jsp?ndmViewId=news_view&newsId=20040616005468&newsLang=en.